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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY
Wayne Muri, President
Chief Engineer
Missouri Highway
and Transportation
Department

Francis B. Francois
Executive Director

May 27, 1993

Ms. Donna R. Searcy
Office of the Secretary
Federal Communications Commission
Washington, DC 20554

RE: PR Docket 92-235

Dear Ms. Searcy:

In response to the above-referenced Notice of Proposed Rulemaking, attached are an original and nine copies of AASHTO's comments.

These comments were developed by the AASHTO Special Committee on Communications through discussion at the Special Committee's recent annual workshop and conference calls involving state telecommunications officials.

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of)

Replacement of Part 90 by Part 88 to)
Revise the Private Land Mobile Radio)
Services and Modify the Policies)
Governing Them)

PR Docket 92-235

COMMENTS OF THE
AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
SPECIAL COMMITTEE ON COMMUNICATIONS

Richard Smith, Chairman

MAY 28 1993

Before the
Federal Communications Commission
Washington, D.C. 20554

AASHTO is the national association of the state departments of highways and transportation in the 50 states, the District of Columbia and Puerto Rico. Its scope includes all five principal transportation modes, and its major purpose is

Position Statement

AASHTO, through its Special Committee on Communications has for more than 40 years monitored and participated in developments in two-way as well as point-to-point radio communications. Recent reductions in the workforce for our member departments along with advancements in technology have resulted in greater reliance upon two-way radio communications in all areas of highway construction, maintenance and traffic control.

Radio communications systems now allow the instant retrieval of highway and weather condition information for any specific area of a state or other jurisdictional area via computer utilizing radio communications links. Radio-equipped snow removal equipment improves response time and safety for workers and highway users as well as reduction in costs by providing instant communications. Work zone safety for both crews and the motorist is enhanced by advanced communications systems such as Travelers' Information Stations and Radio Controlled Message Signs. Sensors are now installed in the pavement which have the capability to alert crews to freezing conditions the instant they occur, greatly expediting response and treatment. Toll authorities can now utilize electronic toll and traffic management systems to reduce traffic congestion, fuel consumption and automobile-related air pollution.

AASHTO is the single entity which possesses the knowledge and experience to assist the Commission as it plans for the future of the Private Land Mobile Radio Services with respect to the public safety highway radio user. The

economic value of a safe, effective and efficient national transportation system and its increasing dependence upon radio communications must not be overlooked.

The Intelligent Highway Vehicle Systems (IVHS) represents another area where radio technology will assist the management and operation of an integrated national transportation system. IVHS will require Land Mobile frequency assignments below 512 MHz. A special requirement of IVHS is the need to operate on the same set of frequencies nationwide, since cars are operated over wide areas. It is desirable that the Commission consider allotting a few of the "new" frequencies that result from channel splitting, and which would be initially unoccupied, to nationwide IVHS applications. Ten to 15 transmit/receive pairs, with spacing of at least 2 MHz transmit to receive, and a spacing of two channels transmit to transmit and receive to receive, would accommodate the known IVHS requirements in this region of the spectrum.

The proposed Part 88 of the Commission's rules lacks the technical standards required for governing operations above line A and below line C. These standards must be agreed upon by the respective sovereign governments of the United States, Canada and Mexico prior to commencing operations under the proposed Part 88. This is necessary to protect users in each country from serious and harmful interference. The methodology to develop these standards has been successfully used during the Commission's treaty negotiations for use of the National Public Safety Planning Advisory Committee (NPSPAC) 800 MHz frequencies. AASHTO firmly believes that standards which protect users in each country must be in place prior to implementing any statewide or region wide systems.

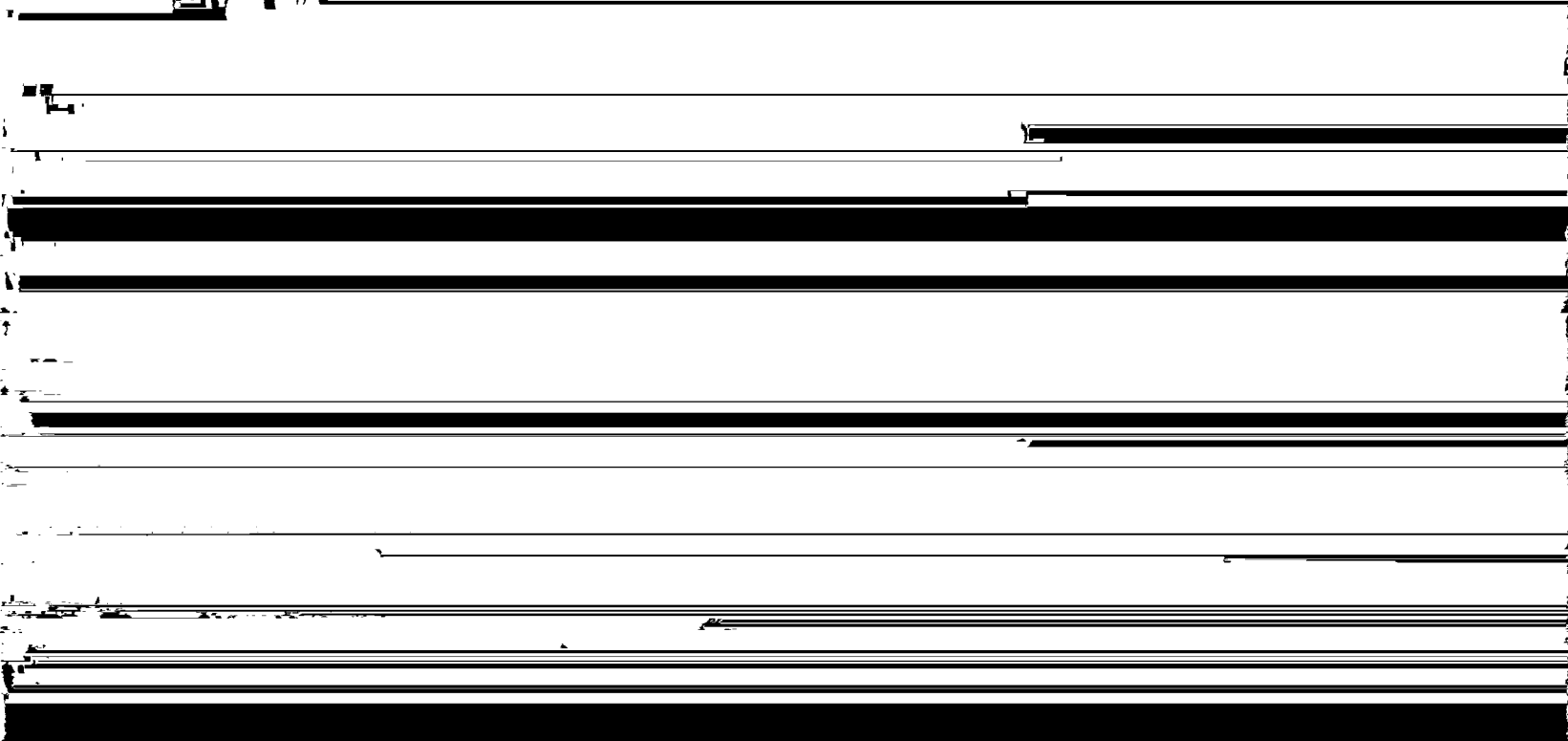
Spectrum Efficiency Standards

AASHTO commends the Commission on its initiative to promote more efficient use of the frequency bands below 512 MHz.

AASHTO supports the concept of creating narrowband channels from existing channels provided that the new narrowband channels are capable of the same quality standards of communications currently enjoyed. We recommend that the technology for the new channels be tested and proven to deliver an equivalent quality of service. All equipment should employ standard operating protocols to ensure inter-operability within and between systems made up of different manufacturer's equipment. The Commission should not mandate the use of any technology before viable commercially available equipment has been type accepted for use.

The authority to operate with narrow bandwidth should be implemented as soon as viable commercial equipment type accepted for the service is available.

Five years from that date, new licenses issued should reflect the narrow



to force smaller users to abandon frequencies may result in an unreasonable burden to the small user whose service to its constituents is of no less value than the larger, monopolistic user. This approach seems more consistent with a business or market-based approach but is not appropriate for public highway radio systems. We recommend that public safety communications systems be exempt from the EUO concept.

Channel congestion is not consistent throughout all parts of the country. Alaska, for example, reports that it has no channel shortage. The Commission may wish to exempt Alaska and possibly Hawaii and Puerto Rico from any mandatory transition to narrowband channels.

Consolidation of the Public Land Mobile Radio Services

The purpose of the proposals contained in this Notice of Proposed Rulemaking is to increase channel capacity, to promote more efficient use of the channels affected, and to simplify the Commission's policies governing the use of these bands. The number of new channels will remain constant whether there is one radio service or one hundred radio services.

The current radio services were established because the Commission recognized that radio users and uses vary according to the work or function of each group or service. The current frequency coordinators were chosen on the basis of their representation of the radio services' users which they represent. These coordinators are knowledgeable of their services users and uses and are the most qualified to assist the Commission in encouraging spectrum efficiency.

We recommend that the existing radio services remain intact and that the Commission incorporate applicable rules from the current Part 90 into Part 88 to insure that all radio services are equally protected. AASHTO is a member of the Public Safety Communications Council and cooperates with all coordinators. The current rules are not cumbersome.

Adopt Reduced Effective Radiated Power
and Height Above Average Terrain Limits

The application of the Commission's proposed reduced Effective Radiated Power (ERP) and Height Above Average Terrain (HAAT) limits is a potentially devastating recommendation. The proposal to limit radiation to the necessary coverage area is commendable. The instant method as proposed by Part 88.429 has the potential to adversely effect the performance of some radio systems by not taking into account the area of operation of a complete radio system. Limiting the ERP and antenna HAAT to signal field strength at the outer geographic limits of the system would be the optimum method of guaranteeing adequate communications.

AASHTO has always encouraged and practiced vertical loading. In many states the same frequency is assigned to adjoining towns and cities within a county. This practice has not only resulted in greater frequency re-use, but enhances inter-operability. The ERP, antenna HAAT and mobile loading levels are unique for each area of the country. It is our experience that the coordinator is uniquely qualified to assist the Commission in promoting spectrum efficiency.

The use of Continuous Tone Coded Squelch Systems (CTCSS) has enhanced vertical loading. The proposal to reduce transmitter deviation to 3 KHz maximum on January 1, 1996 could reduce the benefit of this technology and in some cases seriously degrade the performance of existing radio systems to a less than satisfactory performance level.

AASHTO's research indicates the required signal field strength to achieve adequate communications throughout a geographic area with minimal interference to adjoining areas are:

25-50 MHz	4.0 microvolts/meter
72-76 MHz	3.0 microvolts/meter
150-216 MHz	2.0 microvolts/meter
450-512 MHz	1.0 microvolts/meter

The transmitter output power and antenna gain and height above average terrain required to achieve these signal field strengths would vary in accordance with the terrain in the given area of operation.

The economic impact to licensees required to lease, purchase and develop as many as four to six times the number of transmitter sites to cover the same area of operation must not be overlooked. We feel that wide area systems should be exempt from these limitations, but that they must operate systems using that ERP and antenna HAAT needed for satisfactory operation as proposed by Part 88.429.

Designation of Channels for Innovative Shared Use

We agree that some channels or channel pairs should be set aside for innovative or new technologies. We are not certain, however, that 258 channel pairs are necessary. We recommend that one-half of the newly created channels from the PH radio service be set aside for advanced technologies such as IVHS.

Permitting Trunked Operations

Trunked system operation should be permitted in the bands affected by this proceeding. This technology would greatly increase efficiency for communications systems provided the frequencies utilized are contiguous. AASHTO opposes interspersing Specialized Mobile Radio (SMR) channels between public safety channels because this would limit and possibly eliminate the use of trunked radio systems by public safety radio users.

Modification of Existing Systems

Reducing transmitter deviation and narrowing of the bandwidth receiver would be cost prohibitive and result in a reduction of the effectiveness of the existing systems.

Frequency Coordination

Proposed Rule Part 88.13(a) should be modified to accurately describe the mission of each of the unique Public Safety Radio Services. The eligibility statement for the Public Highway Radio Service should be:

Eligibility. Any territory, possession, state, city, county, town or similar governmental entity, including a road district, toll way commission or authority, and persons charged with specific public safety highway activities, is eligible to hold authorizations in the Public Highway Radio Service to operate radio stations for transmission of communications essential to official activities of the licensee.

An objective of frequency coordination is to avoid harmful interference between current and future users. The current system of multiple coordinators has been successful. AASHTO manages the Highway Maintenance Radio Service in accordance with the Commission's Rule, Part 90.23. This includes radio frequencies used by the statewide transportation departments, counties, townships, and city road and highway departments. The system operated by the users represented an imbedded investment of approximately four billion dollars nationwide.

AASHTO, through its years of experience in coordinating highway maintenance radio service frequencies for state, county, and local governmental entities and its close association and knowledge of the complete operation of our nation's transportation departments, is uniquely qualified to coordinate the highway maintenance radio service. We further feel that the other certified coordinators possess qualifications which uniquely qualify them to coordinate their radio service. The concept of a public safety pool for all current and new Local Government Radio Service frequencies would allow all public safety coordinators to continue their existing role and create competition between coordinators for the local government radio service applicants. Many highway maintenance radio systems utilize local government radio service frequencies. The projected revenue from coordinating these applications should allow a reduction in coordination fees charged by AASHTO and possibly other public safety

coordinators. The consolidation of the current radio services into three broad categories holds little promise to improve spectrum efficiency. It could, however, result in a lack of representation of radio users and potentially increase post-licensing conflicts.

The amount of resources required to prevent a poor frequency recommendation is considerably less than those required to resolve a "post-licensing" conflict.

"Stations utilizing UHF offset frequencies may serve the functions of fixed, mobile, mobile relay or base stations. The station class should indicate the operation of the station."

The current practice of classifying all offset operations as mobiles introduces ambiguity into the license data base and clouds the frequency coordination process. The low power offset channels should be available to all public safety radio users on an equal or 'shared' basis and remain secondary to adjacent channels.

Travelers' Information Stations (TIS)

Travelers' Information Stations provide an important service to the motorist. The transmission of traffic, road and weather conditions improves traffic flow, reduces congestion and improves safety. The proposal contained in Part 88.1091(b) to authorize TIS on a secondary basis throughout the Amplitude Modulated (AM) Broadcast band has the potential to disrupt the operation of many TIS systems.

Rule 88.1091(b) should be amended as follows:

"TIS will be authorized on a primary basis on 1700 kHz nationwide and on a secondary basis to AM broadcast station operation on frequencies between 530 kHz and 1690 kHz. TIS applicants must protect broadcast assignments in the 530-1690 kHz band".

Frequencies Below 72 MHz

The notice does not address frequencies below 72 MHz. In 36 states, the primary radio system for the department of transportation is VHF lowband (47 MHz). On these 47 MHz frequencies, there are approximately 3700 base, 93,000 mobile, and 16,000 portable stations operating on a total of 20 channels nationwide. The rules should allow the use of new narrow band modulation technologies for this portion of the radio frequency spectrum. Narrowband digital frequency modulation as well as other modulation techniques should be permitted, but not mandated.

72-76 MHz Call Box Operations

Proposed Rule 88.907 states that low power operations are secondary, and must protect all other licensed operations and must accept interference from any other operations. This proposal would continue the current interference caused by Part 22 eligibles who use the 72-76 MHz band for high power paging and radio common carrier operations. These operations frequently interfere with low power public highway radio call boxes. The importance of highway radio call boxes in summoning life saving emergency response must not be overlooked.

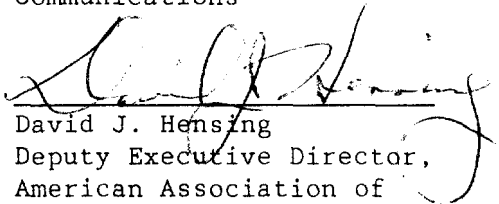
AASHTO recommends that the Commission designate ten frequency pairs in the 72-76 MHz band for highway and fire radio service call boxes on a primary basis with no high power use allowed.

AASHTO is concerned with the exclusion of mobile relay stations in the 150-174 MHz band. We have previously addressed our opposition for EUO in Public Safety Systems. As proposed, the use of mobile relay systems in the 150-174 MHz band is dependent on EUO. AASHTO recommends that mobile relay stations be allowed in the 150-174 MHz, that proposed Part 88.473(a) be modified to accomplish this and that the proposed Part 88.473(1) be deleted. This would allow small users the option of a mobile relay system in the same frequency range as other services within their political area, as well as selection of frequencies that would best fulfill their communications needs, both in operation and engineering.

The channel assignments for the public safety radio services must be contiguous to ensure the proper operation and performance of these systems and to facilitate the use of advanced technologies.

AASHTO respectfully requests that the Commission consider and act favorably upon these comments as it proceeds with this important undertaking.

Respectfully submitted,
American Association of State
Highway and Transportation
Officials, Special Committee
on Communications

By: 
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Deputy Executive Director,
American Association of
State Highway and
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